



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

EQUIPMENT SERVICES GROUP, LLC
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Ferndale, MI 48220
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CALIBRATION

Valid To: December 31, 2025

Certificate Number: 2638.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1,6}:

I. Acoustics and Vibration

Parameter/Range	Frequency	CMC ^{2,5} (±)	Comments
Acceleration – Measure ³ (0.1 to 100) g	10 Hz to 10 kHz	7 % of Meter Reading	Dytran 4151 vibration meter & Dytran 3030B5 accelerometer

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
DC Voltage – Measure ³	(0 to 110) mV (0 to 1.1) V (0 to 11) V (0 to 110) V (0 to 300) V	0.029 % + 20 µV 0.029 % + 0.065 mV 0.029 % + 0.66 mV 0.058 % + 6.4 mV 0.057 % + 21 mV	Fluke 743B
DC Voltage – Generate ³	(0 to 110) mV (0 to 1.1) V (0 to 15) V	0.011 % + 6.8 µV 0.011 % + 0.065 mV 0.012 % + 0.87 mV	Fluke 743B

Parameter/Equipment	Range	CMC ^{2,4} (\pm)	Comments
DC Current – Generate ³	(2 to 22) mA	0.013 % + 3.7 μ A	Fluke 743B
Resistance – Measure ³	(0 to 110) Ω (0 to 1.1) k Ω (0 to 11) k Ω	0.058 % + 0.060 Ω 0.058 % + 0.58 Ω 0.12 % + 12 Ω	Fluke 743B
Resistance – Generate ³	(0 to 11) Ω (0 to 110) Ω (0 to 1.1) k Ω (0 to 11) k Ω	0.011 % + 0.023 Ω 0.011 % + 0.047 Ω 0.023 % + 0.58 Ω 0.030 % + 6.0 Ω	Fluke 743B
Thermocouple Simulation ³ –			
Type J	(-210 to -100) $^{\circ}$ C (-100 to 800) $^{\circ}$ C (800 to 1200) $^{\circ}$ C	0.44 $^{\circ}$ C 0.34 $^{\circ}$ C 0.33 $^{\circ}$ C	Fluke 743B
Type K	(-200 to -100) $^{\circ}$ C (-100 to 400) $^{\circ}$ C (400 to 1200) $^{\circ}$ C (1200 to 1372) $^{\circ}$ C	0.55 $^{\circ}$ C 0.45 $^{\circ}$ C 0.44 $^{\circ}$ C 0.44 $^{\circ}$ C	
Type T	(-250 to -200) $^{\circ}$ C (-200 to 0) $^{\circ}$ C (0 to 400) $^{\circ}$ C	1.2 $^{\circ}$ C 0.54 $^{\circ}$ C 0.43 $^{\circ}$ C	
RTD Simulation ³ –			
100 Ω , Pt 3926	(-200 to 0) $^{\circ}$ C (0 to 630) $^{\circ}$ C	0.26 $^{\circ}$ C 0.33 $^{\circ}$ C	Fluke 743B
100 Ω , Pt 385	(-200 to 0) $^{\circ}$ C (0 to 400) $^{\circ}$ C (400 to 800) $^{\circ}$ C	0.24 $^{\circ}$ C 0.31 $^{\circ}$ C 0.51 $^{\circ}$ C	
100 Ω , Pt 3916	(-200 to -190) $^{\circ}$ C (-190 to 0) $^{\circ}$ C (0 to 360) $^{\circ}$ C	0.40 $^{\circ}$ C 0.24 $^{\circ}$ C 0.31 $^{\circ}$ C	

III. Mechanical

Parameter/Equipment	Range	CMC ² (±)	Comments
Pneumatic Gage Pressure ³ – Gages & Transducers	(0 to 200) psig	0.19 psig	Fluke 743B & Fluke 700PD7 pressure transducer

IV. Thermodynamics

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
Relative Humidity – Measure ³	(10 to 90) % RH	1.9 % RH	Vaisala temperature & humidity indicator
	(90.1 to 95) % RH	2.6 % RH	
Temperature – Measure ³	(-100 to 200) °C	1.2 °C	Fluke 743B w/ Type TSLE TC
	(0 to 250) °C	1.4 °C	Fluke 743B w/ type KSLE TC
	(251 to 400) °C	2.4 °C	
	(401 to 500) °C	2.4 °C	
	(501 to 750) °C	3.9 °C	
	(-40 to 125) °C	0.78 °C	Fluke 743B w/ PRT

V. Time & Frequency

Parameter/Equipment	Range	CMC ^{2,5} (±)	Comments
Time – Measure ³	(1 to 60) min	1.3 s	Stopwatch

¹ This laboratory offers commercial calibration service and field calibration service.

- ² Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.
- ³ Field calibration service is available for this calibration. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g., resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.
- ⁴ The measurands stated are generated with the Fluke 743B instruments. This capability is suitable for the calibration of the devices intended to measure the stated measurand in the ranges indicated. CMC's are expressed as either a specific value that covers the full range or as a fraction/percentage of the reading plus a fixed floor specification.
- ⁵ The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.
- ⁶ This scope meets A2LA's *P112 Flexible Scope Policy*.



Accredited Laboratory

A2LA has accredited

EQUIPMENT SERVICES GROUP, LLC

Ferndale, MI

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSLI Z540-1-1994 and R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 26th day of January 2024.

A blue ink signature of Trace McInturff, written over a horizontal line.

Mr. Trace McInturff Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2638.01
Valid to December 31, 2025

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.